Amendments to the Claims:

Please cancel claims 1-15 and 21 and amend claims 16-20 as shown in the following listing of claims. This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-15 (cancelled)

16. (currently amended) ~~The system of claim 15 further comprising:~~ A system for performing digital multi-channel audio signal decoding, said system comprising:

a sigma-delta analog-to-digital (A/D) conversion block operating on a composite analog audio signal to generate a composite digital audio signal;

a clock generation block generating clock signals used in said multi-channel audio signal decoding;

a DSP processing block including a multi-stage pipelined data path performing certain digital multi-channel audio signal processing functions in response to a set of instructions;

an input buffer block connected between said sigma-delta A/D conversion block and said DSP processing block to transfer said composite digital audio signal to said DSP processing block;

a configuration register block interfacing to at least said DSP processing block, said input buffer block, and said sigma-delta A/D conversion block; and

an output buffer block interfacing to at least said DSP processing block and said clock generation block to output standard audio output signals at standard audio output rates.

17. (currently amended) ~~The system of claim 15~~ A system for performing digital multi-channel audio signal decoding, said system comprising:

a sigma-delta analog-to-digital (A/D) conversion block operating on a composite analog audio signal to generate a composite digital audio signal;

a clock generation block generating clock signals used in said multi-channel audio signal

decoding; and

a DSP processing block including a multi-stage pipelined data path performing certain digital multi-channel audio signal processing functions in response to a set of instructions, wherein said DSP processing block further includes:

data memory for temporary storage of data;

coefficient memory for storing sets of coefficients used in said digital multi-channel audio signal decoding;

instruction memory for storing said set of instructions; and

an instruction decoder for interpreting said set of instructions.

18. (currently amended) ~~The system of claim 15~~ A system for performing digital multi-channel audio signal decoding, said system comprising:

a sigma-delta analog-to-digital (A/D) conversion block operating on a composite analog audio signal to generate a composite digital audio signal;

a clock generation block generating clock signals used in said multi-channel audio signal decoding; and

a DSP processing block including a multi-stage pipelined data path performing certain digital multi-channel audio signal processing functions in response to a set of instructions, wherein said multi-stage pipelined data path comprises:

a memory address calculation stage;

a memory data fetch stage;

a multiplication stage;

an accumulation/mantissa-generation/signal-shifter stage; and

a registers/memory-write stage.

19. (currently amended) ~~The system of claim 15~~ A system for performing digital multi-channel audio signal decoding, said system comprising:

a sigma-delta analog-to-digital (A/D) conversion block operating on a composite analog

audio signal to generate a composite digital audio signal;

a clock generation block generating clock signals used in said multi-channel audio signal decoding; and

a DSP processing block including a multi-stage pipelined data path performing certain digital multi-channel audio signal processing functions in response to a set of instructions, wherein said set of instructions, operating on said multi-stage pipelined data path, is capable of performing at least:

digital frequency compensation of said composite digital audio signal to generate a compensated composite audio signal at a first sample rate;

digital channel demodulation and filtering of said compensated composite audio signal to generate a first single channel audio signal at a second sample rate;

digital channel demodulation and filtering of said compensated composite audio signal to generate a second single channel audio signal at a third sample rate;

DBY decoding of said first single channel audio signal to generate a decoded audio signal at said third sample rate;

re-matrixing of said decoded audio signal and said second single channel audio signal to generate left and right audio signals at said third sample rate; and

sampling rate conversion of at least one of said decoded audio signal, said left and right audio signals, and said second single channel audio signal to generate at least one standard audio output signal at a standard audio output rate.

20. (currently amended) ~~The system of claim 15~~ A system for performing digital multi-channel audio signal decoding, said system comprising:

a sigma-delta analog-to-digital (A/D) conversion block operating on a composite analog audio signal to generate a composite digital audio signal;

a clock generation block generating clock signals used in said multi-channel audio signal decoding; and

a DSP processing block including a multi-stage pipelined data path performing certain

digital multi-channel audio signal processing functions in response to a set of instructions; wherein said set of instructions includes:

an instruction for performing first-order IIR filtering in no more than three clock cycles; and

an instruction for performing second-order IIR filtering in no more than five clock cycles.

21. (cancelled)